

**September 4, 2015**

**To: SIGB Members**

**Fr: Dan Sullivan, PSCB**

**Re: Presentation Materials for September 8<sup>th</sup> SIGB Meeting**

**Below please find staff recommendations for “Coverage Area Objectives” as requested by FirstNet.**

I am also assembling three (3) other pieces of information that FirstNet has requested that are due by September 30<sup>th</sup>: 1) a list of all public safety agencies with staffing levels and contact persons in the state. This has been a difficult exercise because the information is not readily available in one repository. Just yesterday, the federal government sent me a law enforcement and fire data base that I will group and summarize by the Tuesday Meeting. This still leaves me searching for emergency medical agency data. 2) I will bring the current totals of agencies that have responded to the Mobile Data Survey to the Meeting; and, 3) note the baseline data map generated by the Montana State Library in contrast to the FirstNet/OEC baseline data map. **I have placed the maps in the workbook under the maps tab.**

As you may recall, FirstNet provided a baseline map but encouraged us to update the data sets to more accurately reflect population, roads, buildings, infrastructure, etc. If FirstNet does not hear from us they will default to their map. Our map is more current and displays densities of “data points” per square mile grid more accurately. The MSL map conforms to the Coverage Area Priority recommendations below.

Thank you for your participation.

Attachments: Workbook with Priority Graph & Census Data and Summary charts and graphs  
Data Layer Map of Montana authored by Michael Fashoway, MSL  
Data Layer Map of Montana authored by FirstNet/OEC

**Coverage Area Priorities and Staff Recommendations for September 8, 2015 SIGB Meeting:**

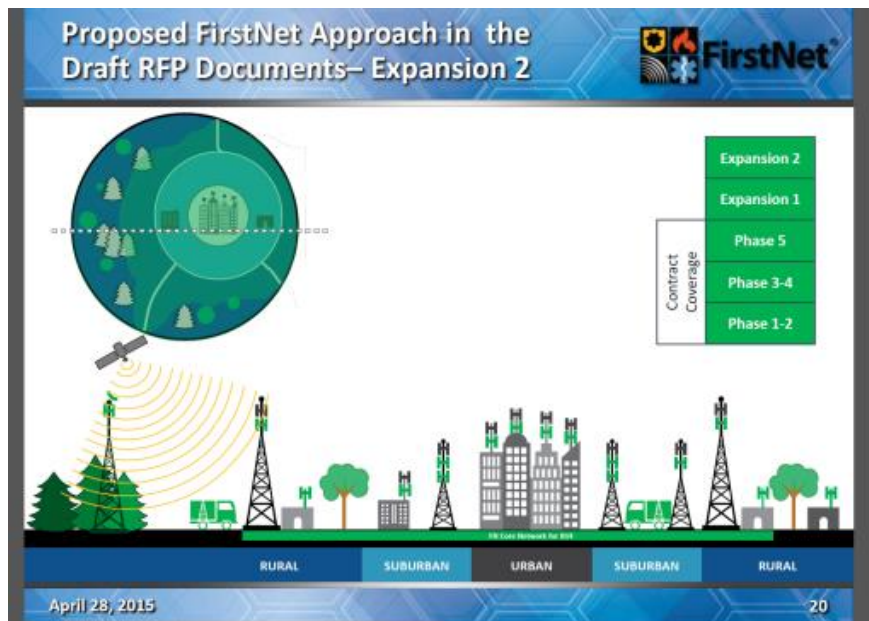
FirstNet has requested that Montana recommend a minimum of 5 coverage area objectives as FirstNet prepares an RFP to select a private wireless partner. The RFP will be issued in late 2015 or early 2016. FirstNet will ask potential partners whether or not they can meet the coverage area objectives the **SIGB** recommends. Once a private partner is selected, with continuing input from the states, the private partner and FirstNet will prepare deployment plans for each state and territory. In accordance with the statute, each Governor will have 90 days to “opt-in” or “opt-out” of the plan. If the Governor opts-out, the state is required to build its own random access network (ran). The very high cost of building a state-wide ran makes it likely that Governor Bullock will **not** opt-out.

At the August 11, 2015 meeting, Staff presented the SIGB suggested coverage area priorities that could be rank ordered or used as a guide to stimulate other priority recommendations. A general discussion

ensued. Because of limited time and the complexity of the subject, the Board did not make recommendation(s) and will re-visit the issue at the September 8, 2015 SIGB Meeting.

### Several inputs from the August 11, 2015 meeting:

Acting SIGB Chairman Ron Baldwin made a comment that the options should be seen in a “matrix”, perhaps expressed on an x-y axis. Note attachment “A” to this discussion paper. You will find a graph where Coverage Area Priorities = y and Phases = x.



There was also discussion around wanting coverage where it does not exist today. **For clarification, today's existing coverage is mostly 3G LTE.** Moreover, comparing existing commercial coverage to FirstNet future coverage is a non-starter. 4G LTE is 10x faster than 3G. FirstNet is a national interoperable network. FirstNet is a dedicated network for public safety with its own priority, pre-emption and spectrum.

The FirstNet slide at left displays 7 network build-out phases. The first 5 phases are the responsibility of the Contractor. According to the FirstNet slide, **it appears that during phases 1 – 5 the build-out will focus on existing privately held infrastructure. 4G equipment will be installed at existing cell sites and those sites will be hardened. FirstNet will deploy in population concentrations first and extend out from densely populated to sparsely populated areas.**

There are two (2) underlying factors to consider: **population and square mile area.**

Generally speaking, there is an inverse relationship between population and square mile area. Over one-half of Montana's population lives in incorporated cities and towns (536,190). Just under one-half of Montana's population lives in Census Designated Places (CDP), on farm and ranches and in rural areas (484,754). Area's of concentrated population tend to be on a small square mile area. Areas of sparse population tend to be spread-out over large square mile areas.

**Montana's Tribal Nations:** Although there have been several meetings with Tribal representatives, priority coverage areas have not been defined by each Tribal Nation. This exercise will continue long past the September 30, 2015 FirstNet data submission. However, in recognition of the Tribal Nations, as a placeholder, the Tribal Nations are included in the priority recommendations listed below and on the Priority Graph.

**The Chart below illustrates the demographics and square mile characteristics of Montana residents:**

Grouping				
Category	Count	Population	Sq Miles	Pop/Sq Mi
Inc. City/Town	129	536,190	292	1,796
County Seats	56	472,117	222	2,127
7 Largest Cities	7	352,170	44	8,004
Census Designated Place	235	151,702	1,891	80
# of Farm & Ranch	29,300	39,930	90,655	0.44
Federal Lands		0	40,601	0
7 Reservations	7	28,359	12,107	2
Balance of State	Rural	264,763	38,084	7
		1,020,944	145,546	7

**Staff Recommendation on Coverage Area Priorities:**

1. **Priority 1:** Provide **4G where it exists today** in Montana's major cities: Billings, Bozeman, Butte, Kalispell, Missoula, Helena, and Great Falls. This priority is consistent with stated FirstNet business objectives. This priority will cover 352,170 persons.
2. **Priority 2: convert existing 3G sites to 4G**, including sites owned and operated by rural Telco's. There are no available figures on how many persons in cities, towns and rural areas will be covered but this Priority will penetrate into rural areas and along highway corridors.
3. **Priority 3: Provide 4G for 56 County Seats and 7 Tribal Headquarters** over Phase's 1-7. Both Priority 1 and 2 will substantially impact Priorities 3-7, penetrating into suburban and rural areas. County Seats each have Commissioners, Sheriffs, Police, Fire, Emergency Medical and hospitals either in-county or regional. By offering service to each County Seat area, public safety can experience the power and utility of a 4G dedicated data network. Moreover, the 56 counties and 7 Tribal Nations HQ would be able to exchange information with other counties and tribes, and the state and federal governments' thus bringing increased continuity of government and quicker response in emergency situations.
4. **Priority 4: Highway coverage** will come-up around the larger cities and towns and covered portions of the Interstate's and be extended over the phases. High, medium and low traffic counts correlate with urban-suburban-rural as reflected by the Priority Graph in the attached spreadsheet.
5. **Priority 5: Critical Infrastructure** includes dams, power plants, electrical transmission lines, industrial sites, railroads, bridges, tunnels, etc. Should CI be the responsibility of the federal government or of private entities that own CI? Whatever organization is responsible, there are

many Montana cities, towns, CDP's and rural areas that are vulnerable to break-downs in CI. For example, oil trains rolling through the State may cause significant damage to the population. Or, a dam or reservoir may rupture causing significant damage to cities, towns or rural populations.

6. **Priority 6: Expand rural coverage** to CDP's, farms and ranches, dead spots on the Interstate's, state roads, Tribal Nations and federal lands.
7. **Priority 7: Deployables** should be available from phase 1 forward, especially in Montana where wild fires, earthquakes and floods occur each year. Neither cities nor rural areas are exempt from natural disasters.

**Supporting demographic and square mile area information can be found in the attached workbook.**